

REMARKS

Claims 1-23 and 30-41 are pending in this application. By this Amendment, claims 23-29 are canceled without prejudice or disclaimer, the specification and claims 1, 2, 7, 8, 13, 15, 17-19 and 21-22 are amended and new claims 30-41 are added. Various amendments are made for clarity, and are unrelated to issues of patentability. Also, applicant respectfully notes that various ones of the original claims include brackets, which are not intended to represent the deletion of features.

Applicant gratefully acknowledges the Office Action's indication that claims 3-6, 8-17 and 20-21 contain allowable subject matter.

The Office Action rejects claim 1 under 35 U.S.C. §103(a) over U.S. Patent 5,541,852 to Eyuboglu et al. (hereafter Eyuboglu) in view of U.S. Patent 6,310,915 to Wells et al. (hereafter Wells) and U.S. Patent 6,621,866 to Florencio et al. (hereafter Florencio). The Office Action also rejects claim 2 under 35 U.S.C. §103(a) over Eyuboglu, Wells, Florencio and U.S. Patent 5,253,041 to Wine et al. (hereafter Wine). The Office Action rejects claim 7 under 35 U.S.C. §103(a) over Eyuboglu, Wells and Florencio and U.S. Patent 6,058,143 to Golin. Further, the Office Action rejects claims 18-19 and 22 under 35 U.S.C. §103(a) over Eyuboglu, Wells and Florencio in view of Applicant's Alleged Admitted Prior Art. (AAPA). The rejections are respectfully traversed.

Independent claim 1 recites a video transcoding apparatus having a video decoder, a video pre-processing unit, a frame memory, a transcoding parameter control unit, a video

encoder and a bit rate control unit. The video pre-processing unit having a predetermined matrix structure and down-sampling a macro block decoded by the video decoder by transforming the macro block into a corresponding picture structure. Furthermore, the transcoding parameter control unit detecting information about a picture from a previous bit stream variable-length-decoded by the video decoder and setting up an encoding mode for a transcoding in accordance with the detected information. The video encoder encoding down-sampled data stored in the frame memory by macro block unit in accordance with the encoding mode set up by the transcoding parameter control unit. The bit rate control unit controlling quantization of the video encoder by calculating a bit amount encoded substantially by every picture among a bit stream to be decoded currently by the video decoder and determining a fullness of a buffer in the video encoder using the calculated bit amount.

The Office Action (on page 3) asserts that Eyuboglu discloses a video decoder, a frame memory, a transcoding parameter control unit and a video encoder. In particular, the Office Action appears to assert, with respect to the claimed transcoding parameter control unit, that Eyuboglu's control switch 616 (via decoder 602) detects information about a picture from a previous bit stream VLD by the video decoder and setting up an encoding mode (Inter/Intra) for transcoding in accordance with the detected information. However, control switch 616 merely operates based on an output of decoder 602. This does not teach or suggest a transcoding parameter control unit setting up an encoding mode for transcoding in accordance with the detected information (about a picture from a previous bit stream variable-length-

decoded). Rather, Eyuboglu's switch 616 operates based on an Inter/Intra mode indicator from the decoder 602. See col. 6, lines 46-49. Eyuboglu also does not disclose a video encoder encoding down-sampled data stored in the frame memory by a macro block unit in accordance with the encoding mode set up by the transcoding parameter control unit. Stated differently, Eyuboglu does not collect information from a previous bit stream and set up an encoding mode for transcoding in combination with encoding data in accordance with an encoding mode set up by a transcoding parameter control unit. Accordingly, Eyuboglu does not disclose the features alleged in the Office Action. Wells and Florencio do not teach or suggest these features of claim 1 missing from Eyuboglu.

The Office Action subsequently states that Eyuboglu does not disclose the claimed video pre-processing unit and the claimed bit rate control unit. The Office Action relies on Wells' encoder 20 for the claimed video pre-processing unit. The Office Action appears to cite Wells' col. 11, lines 39-46. However, this section clearly relates to encoders subsampling the decoded pictures prior to re-encoding. However, this does not teach or suggest a video pre-processing unit having a matrix structure and down-sampling a macro block by transforming the macro block into a corresponding picture structure. For example, there is no discussion relating to macro blocks or to down-sampling of a macro block as recited in independent claim 1. Accordingly, Wells does not teach or suggest the features alleged in the Office Action. Eyuboglu and Florencio do not teach or suggest these features of claim 1 missing from Wells.

Still further, the Office Action alleges that Florencio discloses the claimed bit rate control unit (as shown by various elements in Figures 3, 10 and 11). However, these features do not suggest the claimed features. That is, these features do not teach or suggest a bit rate control unit controlling quantization of the video encoder by calculating a bit amount encoded substantially by every picture among a bit stream to be decoded currently by the video decoder and determining a fullness of a buffer in the video encoder using the calculated bit amount.

For at least the reasons set forth above, the applied references do not teach or suggest all the features of independent claim 1. Furthermore, even if combined, the applied references do not teach or suggest all the features.

The Office Action clearly relies on impermissible hindsight in order to combine the features. That is, there is no suggestion in the prior art for modifying Eyuboglu's transcoder 402 (shown in Figure 6) to include Wells' encoder 20 (shown in Figure 2). Furthermore, there is no suggestion how Florencio's features may be combined with Eyuboglu's transcoder 402 as alleged in the Office Action. That is, these various elements from separate devices may not simply be replaced within one another as alleged in the Office Action.

In order to establish a *prima facie* case of obviousness, there must be some suggestion or motivation, either in the references or in the knowledge generally available to combine references. See M.P.E.P. §2143. The Office Action states that it would have been obvious to combine these references so that the frame memory stores a down-sampled macro block as an efficient way to control the bit rate in a transcoder. However, there is no suggestion in the prior

art for this motivation. The Office Action relies on the present specification in order to provide not only the claimed features but also the alleged motivation for the combination. This is clearly impermissible hindsight and the rejection should be withdrawn at least for this reason.

For at least the reasons set forth above, independent claim 1 defines patentable subject matter. Independent claim 30 defines patentable subject matter for at least similar reasons as claim 1.

Claims 2-23 depend from claim 1 and claims 31-41 depend from claim 30 and therefore define patentable subject matter at least for this reason. In addition, the dependent claims also recite features that further and independently distinguish over the applied references.

For example, dependent claim 2 (and similarly dependent claim 31) recites that the video pre-processing unit carries out down-sampling through a field based processing if the data decoded in the video decoder is a frame picture in an interlacing sequence or the video pre-processing unit carries out a down-sampling through a frame based processing if the data decoded in the video decoder is a field picture structure having a sequential scanning sequence or an interlacing sequence. The Office Action appears to rely on Wine for these features. However, there is no suggestion in Wine for these features. Accordingly, dependent claims 2 and 31 define patentable subject matter at least for this additional reason.

Dependent claim 7 (and similarly dependent claim 36) recites that the transcoding parameter control unit establishes a motion vector and a motion mode of the macro block down-sampled by the video pre-processing unit using a motion information of a previous bit

stream variable-length-decoded by the video decoder. The Office Action appears to rely on Golin's Figure 2, element 205 for these features. However, there is no suggestion for establishing a motion vector and a motion mode of a macro block down sampled by the video preprocessing unit using a motion information of a previous bit stream variable length decoded by the video decoder. That is, there is no discussion regarding element 205 in use with the previous bit stream variable-length-decoded by a video decoder. That is, as set forth in col. 3, lines 22-29, the intermediate processing unit 205 forms interlacing and de-interlacing operations in response to an external input. The intermediate processing unit 205 operates as a pass through unit and provides an output without any pixel domain processing. See col. 3, lines 34-38. Accordingly, dependent claims 7 and 36 define patentable subject matter at least for this additional reason.

CONCLUSION

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Favorable consideration and prompt allowance of claims 1-23 and 30-41 are earnestly solicited. If the Examiner believes that any additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned attorney, **David C. Oren**, at the telephone number listed below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this,

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concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

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